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WE CLAIM:

1. A method for inducing random mutations into a nucleic acid sequence comprising the steps of:

a) providing a nucleic acid sequence for use as DNA template:

b) submitting said DNA template to polymerization reaction with at least one DNA polymerase in presence of at least one alcohol in concentration sufficient to destabilize said DNA polymerase and causing mutagenesis during said polymerization reaction.

2. The method of claim 1, wherein said mutation is a transversion, an insertion, a transition, or a deletion of at least one nucleotide.

3. The method of claim 1, wherein said polymerization reaction is a polymerase chain reaction.

4. The method of claim 1, wherein said DNA polymerase is a thermostable or a mesophile polymerase.

5. The method of claim 1, wherein said DNA polymerase is selected from the group consisting of polymerase produced by *Thermus aquaticus, Thermococcus litoralis*, *Pyrococcus* species GB-D, *Bacillus stearothermophilus*, *Pyrococcus furiosus*, Bacteriophage T7 (type A or B), *Thermus thermophilus*, and *Pyrococcus woesei.*

6. The method of claim 1, wherein said DNA polymerase is a DNA polymerase of the type A or type B family polymerase.

7. The method of claim 1, wherein said mutated nucleic acid sequence encodes for a biologically active protein.

8. The method of claim 1, wherein said alcohol is a chemical entity comprising a –OH group.

9. The method of claim 1, wherein said alcohol is selected from the group consisting of propanol, ethanol, 2-aminoethanol, 1-propanol, 2-propanol, 1,2-propanediol, 1,3-propanediol, propanethiol, 1-butanol, 2-butanol, tert-butanol.

10. The method of claim 1, wherein said polymerization reaction is performed with a composition containing alcohol and nucleotides A, T, G, and C under conditions that allow for controlling mutational bias

11. A method for preparing a library of mutated recombinant nucleic acid sequence comprising the steps of:

a) providing a nucleic acid sequence for use as DNA template:

b) submitting said DNA template to polymerization with at least one DNA polymerase in presence of alcohol in concentration sufficient to lower the fidelity of said DNA polymerase and causing mutagenesis during said polymerization.

12. The method of claim 11, wherein said DNA polymerase is a thermostable polymerase.

13. The method of claim 11, wherein said protein analogs are biologically active protein analogs.

14. A method for producing a library of protein analogs comprising the steps of:

a) preparing a library of expression vectors, each expression vector comprising a mutated nucleic acid sequence prepared with the method of claim 1, operably linked to a promoter inducing transcription of said mutated nucleic acid sequence;

b) allowing said expression vectors of step a) to produce a corresponding protein analogs.

15. Use of an alcohol in the preparation of a polymerization composition for inducing mutations in a DNA sequence.

16. A polymerization composition for inducing mutations in a DNA fragment comprising a DNA polymerase and a sufficient amount of at least one alcohol for destabilizing said DNA polymerase during a process of polymerization.

17. A method for inducing mutations in a DNA fragment comprising adding alcohol in a polymerization reaction of a DNA template.